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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 08/458,019      | 06/01/1995  | ERIC A. JOHNSON      | 2502495-991100      | 2660             |

35928 7590 10/20/2005

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EXAMINER

LILLING, HERBERT J

ART UNIT PAPER NUMBER

1651

DATE MAILED: 10/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                |                                |  |
|------------------------------|--------------------------------|--------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>08/458,019  | Applicant(s)<br>JOHNSON ET AL. |  |
|                              | Examiner<br>HERBERT J. LILLING | Art Unit<br>1651               |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 August 2004 and 28 February 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 25-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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1. Claims 25-34 are pending in this application.
2. In accordance with the decision of the United States Court of Appeals decided August 12, 2004 and the remand from the Board of Appeals, the prior office actions have been withdrawn.
3. As required by the PTO Claims 25-34 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims of U.S. Patent No 5,182,208:

Although the conflicting claims are not identical, they are not patentably distinct from each other because

1. A process for the production of a yeast having an enhanced astaxanthin content, comprising culturing a microorganism of genus *Phaffia* in a nutrient medium containing at least one of (i) an antibiotic selected from the group consisting of antimycin, tunicamycin, and nystatin, and (ii) mevalonic acid lactone.

5. A process as in claim 1, employing as said yeast *P. rhodozyma* ATCC 24230 to ATCC 24202.

6. A process as in claim 1, wherein the astaxanthin in harvested yeast is 1000 ppm or more based on dry weight of yeast cells.

7. A process for the production of a yeast having an enhanced astaxanthin content, comprising subjecting a microorganism of genus *Phaffia* to growth in the presence of a main respiratory pathway inhibitor under an influence which triggers a secondary respiratory pathway, wherein the main respiratory pathway inhibitor is a member selected from the group consisting of antimycin A, thenoyltrifluoroacetone, cyanide, axide and hydrogen peroxide.

12. A process for the production of a yeast having an enhanced astaxanthin content, comprising culturing a microorganism of genus *Phaffia* one or more times in a nutrient medium containing at least one of (i) an antibiotic selected from the group consisting of antimycin, tunicamycin, and nystatin, and (ii) mevalonic acid lactone, cultivating surviving microorganisms exhibiting enhanced pigmentation, harvesting the cultivated yeast, and extracting the astaxanthin.

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14. A process for the production of a yeast having an enhanced astaxanthin content, comprising culturing a microorganism of genus *Phaffia* in a nutrient medium containing an inhibitor of electron transport which blocks the transfer of electrons from cytochrome b to c in a yeast of genus *Phaffia*.

16. A process as in claim 14, employing as said yeast *Phaffia rhodozyma* ATCC 24230 or ATCC 24202.

17. A process as in claim 14, wherein the astaxanthin in harvested yeast is 1000 ppm or more based on dry weight of yeast cells.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Applicant had inserted the following new claims as claims 41-44 which were not part of the restriction requirement of US Patent 5,182,208 which is recited as follows:

25. An astaxanthin mutant *Phaffia rhodozyma* producing more astaxanthin than naturally occurring *Phaffia rhodozyma*, said mutant producing more than 700 micrograms of astaxanthin per gram of dry yeast per six-day culture in YM medium wherein the amount of astaxanthin is determined by measuring the absorbance at 474 nanometers of a petroleum ether extract of *Phaffia rhodozyma* using a 1% (w/v) extinction coefficient in a one centimeter cuvette of 2100.

Thus, the rejection is appropriate unless Applicant has support to withdraw the above rejection or if a proper terminal disclaimer is submitted.

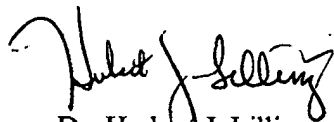
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5. **No claim is allowed.**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Examiner Lilling whose telephone number is 571-272-0918 and Fax Number is (703) 872-9306** or SPE Michael Wityshyn whose telephone number is 571-272-0926. Examiner can be reached Monday-Thursday from about 5:30 A.M. to about 3:00 P.M. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://portal.uspto.gov/external/portal/pair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

H.J.Lilling: HJL  
(571) 272-0918  
Art Unit **1651**  
April 20, 2005



Dr. Herbert J. Lilling  
Primary Examiner  
Group 1600 Art Unit 1651